Department of Energy
Idaho Operations Office
1955 Fremont Avenue
Idaho Falls, ID 83401

February 11, 2004

INEEL CERCLA Administrative Record

SUBJECT: Approval to Proceed with Preparation of an Engineering Evaluation/Cost Analysis (EE/CA) for the Idaho National Engineering and Environmental Laboratory (INEEL), In Situ Grouting Early Action Project in the Subsurface Disposal Area (EM-ER-04-018)

Background:

The Radioactive Waste Management Complex (RWMC), located in the southwestern quadrant of the Idaho National Engineering and Environmental Laboratory (INEEL), encompasses a total of 72 ha (177 acres) and is divided, by function, into the following three separate areas: (1) the Subsurface Disposal Area (SDA), (2) the Transuranic Storage Area (TSA), and (3) the administration and operations area. The SDA is the original landfill established in 1952 for the shallow land disposal of solid radioactive waste. The RWMC, including the SDA, is undergoing remediation under the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) (42 USC § 9601 et seq.) in accordance with the *Federal Facility Agreement and Consent Order for the Idaho National Engineering Laboratory* (DOE-ID 1991). The Federal Facility Agreement and Consent Order designates the RWMC as Waste Area Group 7, which is further subdivided into 13 operable units (OU). Operable Unit 7-13/14 is the combined OU for the comprehensive remedial investigation and feasibility study evaluating SDA contamination, risk, and associated remedial alternatives.

The SDA is a radioactive waste landfill with shallow subsurface disposal units consisting of pits, trenches, and soil vaults. Contaminants in the SDA include hazardous chemicals, remote-handled fission and activation (FA) products, and TRU radionuclides. Both field monitoring data and modeling of contaminant fate and transport suggest that mobile, long-lived FA products (e.g., C-14, I-129, and Tc-99) pose the most immediate health risk from the SDA (Holdren et al. 2002).

The U.S. Department of Energy Idaho Operations Office (NE-ID) has directed the isolation or drying of the beryllium reflector blocks to reduce migration of carbon-14 (Bauer 2003).

NE-ID, in consultation with the Idaho Department of Environmental Quality and the U.S. Environmental Protection Agency, Region 10, has concluded that it is appropriate to consider a non-time-critical removal action (NTCRA) using in situ grouting to isolate the beryllium reflector blocks in the SDA in support of the comprehensive remediation of OU 7-13/14. This NTCRA is referred to as the In Situ Grouting Early Action Project. The NTCRA area of focus includes 14 specific locations in the soil vault rows and trenches in which beryllium reflector blocks are buried in the SDA. The CERCLA process requires preparation and public review of

an engineering evaluation and cost analysis (EE/CA) before preparation of the action memorandum that will document official selection of the NTCRA alternative and associated details that support the official selection.

Threat to Public Health, Welfare, or the Environment:

Based on existing site characterization and risk information, NE-ID concluded that the buried beryllium reflector blocks have released hazardous substances to the surrounding environment and that the source materials pose a threat of continuing future release unless a mitigating response action is taken (Holdren et al. 2002). Further, NE-ID concludes that the proposed NTCRA is consistent with National Contingency Plan criteria for removal actions (40 CFR 300.415[b][2][iii]), since the area of focus contains "Hazardous substances or pollutants or contaminants in drums, barrels, tanks, or other bulk storage containers, that may pose a threat of release" (40 CFR 300).

Absent timely response action, existing OU 7-13/14 risk analysis indicates that there is a potential future threat to public health and the environment from release of hazardous substances from the beryllium reflector blocks, which have been disposed of in the soil vaults and trenches of the SDA.

Enforcement Actions:

No enforcement actions are related to the In Situ Grouting Early Action Project.

Proposed Project and Cost:

Based on the focused objectives, alternatives to be considered in the EE/CA are limited to the No Action alternative and in situ grouting of the source. In situ grouting is one of the alternatives for remediation of the SDA that has been proposed to be evaluated in the OU 7-13/14 Feasibility Study (Holdren and Broomfield 2003). The No Action alternative is included in accordance with U.S. Environmental Protection Agency requirements for comparative purposes and is limited to continuation of current INEEL-wide monitoring of environmental media.

The preliminary cost estimate for in situ grouting of the 14 locations is approximately $3.5 million. This includes costs for preconceptual planning, writing the performance specification, awarding the bid, and mobilization and management self-assessments. The NTCRA is estimated to require approximately 9 months to complete. It should be noted that a monitoring program would continue to be operated under this action as part of the comprehensive SDA monitoring program.

No Action, as evaluated, consists of continuing with the present course of action with no changes, thus the existing site conditions will remain unchanged. The key element of the No Action alternative is an interim-monitoring scenario. The estimated total monitoring cost for the No Action alternative for the entire RWMC is $3.3 million. It is assumed for this alternative that monitoring would be conducted for various media at the SDA for a period of 15 years, at which time the monitoring program developed under the Record of Decision would be ready for implementation.

This early stabilization action is estimated to be completed by the end of October 2004.

Approval to Conduct EE/CA:

Approval is hereby given by NE-ID to conduct an EE/CA for the In Situ Grouting Early Action Project: NTCRA grouting of 14 specific locations of beryllium reflector blocks in the SDA. The NTCRA and associated activities will be conducted in accordance with the relevant requirements of the National Contingency Plan and pursuant to Section 104 of CERCLA, as provided by section 2.(d), Executive Order 12580, "Superfund Implementation" (1987). Kathleen E. Hain is designated as the spokesperson. The completed EE/CA shall be made available for public review and comment.

Sincerely,

Lisa A. Green, Deputy Assistant Manager
Environmental Management

References:

40 CFR 300, 2003, "National Oil and Hazardous Substances Pollution Contingency Plan," *Code of Federal Regulations*, Office of the Federal Register, November 2003.

42 USC § 9601 et seq., 1980, "Comprehensive Environmental Response, Compensation and Liability Act of 1980 (CERCLA/Superfund)," *United States Code,* December 11, 1980.

"Superfund Implementation," Executive Order 12580, (January 23, 1987), 52 Federal Register 2923, as amended by Executive Order 12777 (October 18, 1991), 56 Federal Register 54757.

DOE-ID, 1991, *Federal Facility Agreement and Consent Order for the Idaho National Engineering Laboratory,* Administrative Docket No. 1088-06-29-120, U.S. Department of Energy Idaho Operations Office; U.S. Environmental Protection Agency, Region 10; Idaho Department of Health and Welfare, December 4, 1991.

Bauer, W. L., December 17, 2003, Correspondence to S. S. Crawford, Manager, Prime Contracts, "Revision of Waste Area Group 7-13/14 Work Scope (EM-ER-03-305)," U.S. Department of Energy, Idaho Operations Office.

Holdren, K. Jean, Bruce H. Becker, Nancy L. Hampton, L. Don Koeppen, Swen O. Magnuson, T. J. Meyer, Gail L. Olson, and A. Jeffrey Sondrup, 2002, *Ancillary Basis for Risk Analysis of the Subsurface Disposal Area,* INEEL/EXT-02-01125, Rev. 0, Idaho National Engineering and Environmental Laboratory, September 2002.

Holdren, K. Jean, and Barbara J. Broomfield, 2003, *Second Revision to the Scope of Work for the Operable Unit 7-13/14 Waste Area Group 7 Comprehensive Remedial Investigation/Feasibility Study*, INEL-95/0253, Rev. 2, Idaho National Engineering and Environmental Laboratory.